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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEE, BENNY T

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE  
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- ☒ This application has been examined ☐ Responsive to communication filed on \_\_\_\_\_ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), \_\_\_\_\_ days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.                 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474.     | 6. <input type="checkbox"/> _____   |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-42 are pending in the application.  
Of the above, claims \_\_\_\_\_ are withdrawn from consideration.
2. ☐ Claims \_\_\_\_\_ have been cancelled.
3. ☐ Claims \_\_\_\_\_ are allowed.
4. ☒ Claims 1-3, 6, 11, 22 - 30; 31, 36; 37, 38, 41, 42 are rejected.
5. ☒ Claims 4, 5, 7-10, 12-21; 32-35; 39, 40 are objected to.
6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.64 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_, filed on \_\_\_\_\_.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other \_\_\_\_\_

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Note that through out the specification the term --a-- should be inserted prior to appropriate descriptive features. For example, -- a high frequency signal -- in paragraph (0005), etc. Page 3, paragraph (0011), sixth line therein, note that -- opening -- should follow "first"; 15<sup>th</sup> line therein, note that "is made not via ..." should be rephrased. Page 5, paragraph (0017), seventh and eight lines note that --the-- should precede "main" and "metal", respectively. Page 8, paragraph (0026), sixth, ninth and tenth lines, note that "the", "to" and "or" (first occurrence) should be respectively deleted as being unnecessary, and in the tenth line, a --, -- should follow "soldering". Note that all occurrences through out the specification, the term "said" should be rewritten as -- the -- or otherwise deleted, whichever is appropriate.

The disclosure is objected to because of the following informalities: Page 2, in the subheading note that "BRIEF" and "EMBODIMENT OF" should be deleted as being unnecessary. Page 3, paragraph (0011) and (0012), note that "content" should be rephrased as --dielectric constant-- for a proper characterization. Page 4, paragraph (0014), note that reference labels (1, 4, 2, 3) are inappropriate for the "Brief Description of the Drawings" and thus should be deleted. Page 10, paragraph (0032), note that "waveguide 11" and "flange 11" do not appear consistent and --as shown in fig. 1--

Art Unit: 2817

should follow "module 10". Page 10, paragraph (0035), note that "layer 3 as shown in Fig. 5" does not appear consistent with what is depicted in the drawing figure.

Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following reference labels need explicit description relative to the specification description of the corresponding drawing figure: Fig. 3 (6); fig. 4 (6, 7, 8); fig. 5 (6, 7); fig. 6, all reference labels except (9, h); fig. 10 all reference labels except (8, 9, 12, 13); fig. 12 (10, 11). Appropriate correction is required.

The drawings are objected to because in fig. 12 reference labels --3-- and --4-- need to be provided as per the paragraph (0048) description. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the integrated antenna array (cls. 19, 20) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

Art Unit: 2817

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 6, 8, 25-28, 30; 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, note that "said non-laminated waveguide" lacks strict antecedent basis.

In claim 8, note that the recitation "said boundary structure is configured for said boundary structure" is vague in meaning.

In claims 25-28, note that it is unclear what these claims read on since there does not appear to be any support for these claim limitations in the specification description.

In claim 30, note that the subject matter of this claim appears to be redundant since the method steps recited herein are already encompassed by the recitations in independent claim 1, from which this claim directly depends.

In claim 41, note that reference to "a same substrate as said first waveguide" is vague in meaning since no "first waveguide" has been strictly defined.

The following claims have been found objectionable for reasons set forth below:

Art Unit: 2817

In claims 1, 37, note that – a – should precede appropriate features. Also, note that – opening – should follow “first”.

In claim 1, note that “for use” should be rephrased as --in operation --. Note that “content of” should be rephrased as --a dielectric constant--. Note that “is made not via....” should be rephrased for a proper characterization.

In claim 3, note that “comprises air or dielectric material, solid or partial” should be rephrased as --comprises one of air and solid or partially solid dielectric material – for a proper characterization.

In claim 18, note that “it’s bottom” should be rephrased as --a bottom thereof-- and “helps to improve ... to second” should be rephrased as --provides an improved ... to the second” for clarity of description.

In claim 24, note that “a same” should be rephrased as --the same-- for a proper characterization.

In claim 29, note that --a value of-- should follow “by” for clarity of description.

In claim 31, note that “content of said interiors having” should be rephrased as -- wherein said interiors include respective dielectric material having-- for clarity of description. Also, note that “directly” should be moved from its present location to a location proceeding “into”.

In claim 37, note that --dielectric-- should precede “materials” for consistency of description.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2817

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 3, 6, 11, 22, 23, 24, 29, 30, 31, 36, 37, 38, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Uchimura publication in view of Uchimura et al.

The Uchimura publication discloses a means or method of transitioning electromagnetic energy between first waveguide (e.g. 43, 61, 82) and a second waveguide (38, 57, 77). The means/method of transitioning comprises conductive connection members (33) arranged to surround and match the shapes of the openings (e.g. rectangular cross-section) of the first and second waveguides (i.e. 39, 58a, 78a; 35a, 54a, 75a). Moreover, since the conductive connection members (33) have a finite physical thickness, an interior and upper and lower openings are inherently formed as parts of the conductive connection member. Further more, note from fig 4 that an additional bonding layer also bonds the first and second waveguides such as to provide

Art Unit: 2817

hermetic sealing there between. Additionally, note that the first and second waveguides (43, 61, 38, 57) are laminated waveguides having a structure of the type analogously disclosed in fig. 7. For example the elements (41, 42) in waveguide (43) of fig. 1 inherent would have corresponded to elements (23, 22) of the laminated waveguide (24) of fig. 7. Alternatively, as evident from fig. 3, first waveguide (82) is of the laminated type while the second waveguide (77) include metal walls (74, 75) with a solid dielectric interior (76). In operation, electromagnetic signals propagated between the first and second waveguides through the conductive connection structure (33).

Uchimura differs from the claimed invention in that the nature of the dielectric material constant of the first and second waveguides are not specified as being different and the frequency of operation being at least 10 GHz is unspecified therein.

Uchimura et al discloses in fig. 1, a laminated waveguide comprising metal waveguides walls (2, 3) laminated with composite dielectric layers (1a, 1b, 1c), where layers (1a, 2c) can be of a different dielectric constant than layer (1b) to provide the benefit of lower loss as described at col. 6, lines 51-60. Furthermore note that the lowest frequency of operation for this waveguide would be above 15 GHz (col. 5, ls 64, 65).

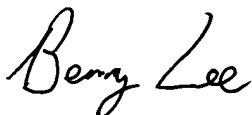
Accordingly, it would have been obvious to in view of the references taken as a whole to have modified the metal wall dielectric laminate waveguide (77) in fig. 4 of the Uchimura publication with the analogous art metal wall dielectric laminate waveguide as taught in fig. 7 of Uchimura et al.



Art Unit: 2817

Such a substitution of art recognized equivalents would have been considered obvious in view of the generic nature of metal wall dielectric laminate waveguide of the Uchimura publication, thereby suggesting that any equivalent type of metal wall dielectric waveguide (e.g. Uchimura et al, fig. 1) would have been usable therewith. Therefore, as a consequence of such a modification, the modified waveguide of the combination has a composite dielectric constant which obviously differs from the dielectric constant of the waveguide (82), especially since the homogeneous dielectric in waveguide (82) cannot be the same materials in the composite dielectrics for the modified waveguide. Furthermore, note that col. 5, ls 37-39 and 50 of Uchimura et al discloses preferred dielectric materials usable in the composite dielectric having dielectric constants in the range of 4 to 25. Accordingly, by appropriate selection of the dielectric materials in the composite dielectric laminate, obviously appropriate combinations of dielectric materials would have resulted in a difference in dielectric constant of at least three, especially given the recited range in dielectric constant (i.e. 4 to 25) of these dielectric materials. Finally, as an obvious consequence of such a modification, the frequency of operation (15GHz) obviously meets the claimed operating range of 10 GHz.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (571) 272-1764.



B, Lee

09/16/04

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ART UNIT 2817